

## CLAIMS

1. A process for generating an MPEG output bitstream from an MPEG input bitstream, said MPEG output bitstream having a resolution modified with respect to the resolution of said MPEG input bitstream, the process comprising the operations of:

distinguishing, in said MPEG input bitstream, first portions that substantially do not affect and second portions that substantially do affect variation of the resolution of the MPEG output bitstream;

subjecting said second portions of the MPEG input bitstream to a function of modification of the resolution obtained by filtering said second portions in a discrete cosine transform domain; and

transferring said second portions to said output bitstream.

2. The process according to claim 1, further comprising an operation of subjecting said second portions that have undergone filtering in the domain of the discrete cosine transform to an inverse discrete cosine transform function to generate decompressed data with modified resolution that are perceptible during generation of said output bitstream with modified resolution.

3. The process according to claim 1 wherein said filtering said second portions in the domain of the discrete cosine transform is performed with selectively variable coefficients.

4. The process according to claim 3 wherein said selectively variable coefficients are configured to be selectively variable during generation of said output bitstream with modified resolution.

5. The process according to claim 1, further comprising subjecting said second portions of the input bitstream to an inverse-quantization operation and to a motocompensation operation.

6. The process according to claim 5, further comprising subjecting said second portions of the input bitstream to an inverse VLC function prior to said inverse-quantization operation is performed.

7. The process according to claim 5, further comprising the operation of storing said second portions of the input bitstream subjected to motocompensation with a resolution corresponding to the modified resolution of said output bitstream.

8. The process according to claim 7, further comprising the operations of:  
carrying out said motocompensation by operating on said second portions of the input bitstream subjected to inverse quantization with a first resolution corresponding to the resolution of said input bitstream;

subjecting said data that have undergone motocompensation to a first operation of modification of said first resolution into a second resolution corresponding to the resolution of said output bitstream;

storing said data subjected to motocompensation with said second resolution; and

generating prediction data for said motocompensation starting from the data stored with said second resolution by subjecting the stored data to a second operation of modification of the resolution that brings back the resolution of the stored data from said second resolution to said first resolution.

9. The process according to claim 8 wherein said second resolution is a resolution lower than said first definition.

10. The process according to claim 1 wherein said filtering operation in the domain of the discrete cosine transform includes the operations of:

storing a given number of macroblocks aligned on one and the same line; and  
multiplying said macroblocks by at least one matrix with a scaled factor of definition.

11. The process according to claim 10, wherein said given number of aligned macroblocks are aligned on one and the same horizontal line, and in that said definition factor is scaled in the horizontal direction.

12. The process according claim 10 wherein said given number of aligned macroblocks are aligned on one and the same vertical line, and in that said definition factor is scaled in the vertical direction.

13. The process according to claims 10, further comprising the operation of storing both a given number of macroblocks aligned on a horizontal line and a given number of macroblocks aligned on a vertical line, so that said definition factor is scaled both in the horizontal direction and in the vertical direction.

14. The process according to any one of claims 10 wherein said given number of macroblocks comprises at least three macroblocks.

15. A system for generating an MPEG output bitstream starting from an MPEG input bitstream said MPEG output bitstream having a resolution modified with respect to the resolution of said MPEG input bitstream, the system comprising:

a sorting module configured to distinguish, in said input bitstream, first portions that substantially do not affect and second portions that substantially do affect variation of resolution of the MPEG output bitstream; and

at least one processing module configured to subject said second portions of the input bitstream to a function of modification of the resolution obtained by filtering said second portions in a domain of a discrete cosine transform, the at least one processing module further configured to transfer, to said output bitstream, said second portions subjected to filtering in the domain of the discrete cosine transform.

16. The system according to claim 15, further comprising an inverse-transform module configured to subject said second portions that have undergone filtering in the domain of the discrete cosine transform to an inverse discrete cosine transform function to generate decompressed data with modified resolution that are perceptible during generation of said output bitstream with modified resolution.

17. The system according to claim 15 wherein said at least one processing module performs said operation of change of resolution via filtering in the domain of the discrete cosine transform with selectively variable coefficients.

18. The system according to claim 17 wherein said at least one processing module is configured in such a way that said coefficients are selectively variable during generation of said output bitstream with modified resolution.

19. The system according to any one of the preceding claim 15 wherein said at least one processing module is further configured to perform on said second portions of the input bitstream, an inverse-quantization operation and a motocompensation operation.

20. The system according to claim 19 wherein said at least one processing module is further configured to subject said second portions of the input bitstream to an inverse VLC function prior to performing said inverse quantization operation.

21. The system according to claim 19, further comprising at least one storage module configured to store said second portions of the input bitstream subjected to motocompensation with a resolution corresponding to the modified resolution of said output bitstream.

22. The system according to claim 21 wherein said at least one processing module is further configured to:

execute said motocompensation by operating on said second portions of the input bitstream subjected to inverse quantization with a first resolution corresponding to the resolution of said input bitstream;

subject said data that have undergone motocompensation to a first operation of modification of said first resolution into a second resolution corresponding to the resolution of said output bitstream;

store said data subjected to motocompensation with said second resolution; and

generate prediction data for said motocompensation starting from the data stored with said second resolution by subjecting the stored data to a second operation of modification of the resolution that brings back the resolution of the stored data from said second resolution to said first resolution.

23. The system according to claim 22 wherein said second resolution is a resolution lower than said first resolution.

24. The system according to claim 15 wherein said at least one processing module is further configured to:

store a given number of macroblocks aligned on one and the same line; and

multiply said macroblocks by at least one matrix with a scaled factor of definition.

25. The system according to claim 24 wherein said given number of aligned macroblocks are aligned on one and the same horizontal line, and in that said definition factor is scaled in the horizontal direction.

26. The system according to claim 24 wherein said given number of aligned macroblocks are aligned on one and the same vertical line, and in that said definition factor is scaled in the vertical direction.

27. The system according to claim 24, further comprising the operation of storing both a given number of macroblocks aligned on a horizontal line and a given number of macroblocks aligned on a vertical line, so that said definition factor is scaled both in the horizontal direction and in the vertical direction.

28. The system according to claim 24 wherein said given number of macroblocks comprises at least three macroblocks.

29. A computer program product directly loadable in the memory of a digital computer and comprising software code portions for causing a computer to generate an output bitstream from an input bitstream, the output bitstream having a resolution modified with respect to the resolution of the input bitstream, by:

distinguishing, in the input bitstream, first portions that substantially do not affect and second portions that substantially do affect variation of the resolution of the output bitstream;

subjecting the second portions of the input bitstream to a function of modification of the resolution obtained by filtering the second portions in a discrete cosine transform domain; and

transferring the second portions to the output bitstream.

30. The computer program product of claim 29, further causing the computer by subjecting the second portions that have undergone filtering in the domain of the discrete cosine transform to an inverse discrete cosine transform function to generate decompressed data with modified resolution that are perceptible during generation of the output bitstream with modified resolution.

31. The computer program product of claim 29 wherein the filtering the second portions in the domain of the discrete cosine transform is performed with selectively variable coefficients.

32. The computer program product of claim 31 wherein the selectively variable coefficients are configured to be selectively variable during generation of the output bitstream with modified resolution.

33. The computer program product of claim 29, further causing the computer by subjecting the second portions of the input bitstream to an inverse-quantization operation and to a motocompensation operation.

34. The computer program product of claim 33, further causing the computer by subjecting the second portions of the input bitstream to an inverse VLC function prior to the inverse-quantization operation being preformed.

35. The computer program product of claim 33, further causing the computer by storing the second portions of the input bitstream subjected to motocompensation with a resolution corresponding to the modified resolution of the output bitstream.

36. The computer program product of claim 35, further causing the computer by:

carrying out the motocompensation by operating on the second portions of the input bitstream subjected to inverse quantization with a first resolution corresponding to the resolution of the input bitstream;

subjecting the data that have undergone motocompensation to a first operation of modification of the first resolution into a second resolution corresponding to the resolution of the output bitstream;

storing the data subjected to motocompensation with the second resolution; and

generating prediction data for the motocompensation starting from the data stored with the second resolution by subjecting the stored data to a second operation of modification of the resolution that brings back the resolution of the stored data from the second resolution to the first resolution.

37. The computer program product of claim 36 wherein the second resolution is a resolution lower than the first definition.

38. The computer program product of claim 29 wherein the filtering in the domain of the discrete cosine transform includes:

storing a given number of macroblocks aligned on one and the same line; and

multiplying the macroblocks by at least one matrix with a scaled factor of definition.

39. The computer program product of claim 38 wherein the given number of aligned macroblocks are aligned on the same horizontal line, and in that the definition factor is scaled in the horizontal direction.

40. The computer program product of claim 38 wherein the given number of aligned macroblocks are aligned on the same vertical line, and in that the definition factor is scaled in the vertical direction.

41. The computer program product of claim 38, further comprising storing both a given number of macroblocks aligned on a horizontal line and a given number of macroblocks aligned on a vertical line, so that the definition factor is scaled both in the horizontal direction and in the vertical direction.

42. The computer program product of claim 38 wherein the given number of macroblocks comprises at least three macroblocks.